

## CLAIMS

1. An apparatus for generating X-rays by irradiating a target with an electron beam, comprising vibration applying means for vibrating said target in directions parallel to a surface thereof.
2. An apparatus as defined in claim 1, wherein said vibration applying means is arranged to vibrate said target so that said electron beam has a colliding spot describing, on said target, one of a linear track, a circular track, and a two-dimensional shape including zigzag and rectangular shapes.
3. An apparatus as defined in claim 1, further comprising the vibration controller for controlling said vibration applying means based on one of a tube voltage, a tube current, an electron beam diameter, and a temperature measured adjacent a spot of electron beam collision.
4. An apparatus as defined in claim 3, wherein said vibration controller is arranged to control the vibration amplitude more than the electron beam diameter and variable.

5. An apparatus as defined in claim 3, wherein said vibration controller is arranged to make the vibration frequency variable.
- 5 6. An apparatus as defined in claim 1, wherein said vibration applying means includes a piezoelectric device.
7. An apparatus as defined in claim 6, wherein said piezoelectric device is integrated with a holder having said 10 target to define a closed space.
8. An apparatus as defined in claim 1, further comprising flexures for attaching and supporting said holder.
- 15 9. An apparatus as defined in claim 8, wherein said flexures are made by electrical discharge machining.
10. An apparatus as defined in claim 1, wherein said target is vacuum-sealed by rubber elements or flexures.

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11. An apparatus as defined in claim 1, wherein said target has a thickness up to twice depth of electrons penetration calculated from a tube voltage and said target material.
- 25 12. An apparatus as defined in claim 1, wherein said vibra-

tion applying means is arranged to displace said target.

13. An apparatus as defined in claim 1, wherein said vibration applying means is disposed in an bore in which said  
5 target is located.

14. An apparatus as defined in claim 8, wherein said flexures are shaped thin in a direction of vibration of said target, and thick in a direction perpendicular to the direction of  
10 vibration.

15. An apparatus as defined in claim 1, wherein said target has a thickness corresponding to a diameter of collision of said electron beam.

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16. An apparatus as defined in claim 1, wherein said target is disposed at an angle to said electron beam.